

REMARKS

This paper is intended as a full and complete response to the Final Office Action dated October 30, 2007

Claims 1-17 and 27-37 are pending in the application and stand rejected.

Claims 1-4, 12, and 27-37 are cancelled without prejudice. The cancellation of claims 1-4, 12 and 27-37 is not an admission of non-patentability. Applicant has simply canceled those claims without prejudice to place the application in condition for allowance and/or reduce issues for appeal.

Claim 5 is currently amended Applicant to include the subject matter previously presented in dependent form in claim 12. Claim 12 was previously searched and considered by the Examiner and therefore, does not require any additional search or consideration. Entry of the amendment after Final is respectfully requested.

Entry of the foregoing amendment and reconsideration of the claims is respectfully requested.

Claim Rejections – 35 USC 103

The Office Action rejected Claims 1-8, 10-16, and 27-36 under 35 U.S.C. § 103(a) as being unpatentable over *Audeh* US Patent Number 5,192,421 (hereinafter “Audeh”), in view of *Inomata* Japanese Patent Number 2002-302680 (hereinafter “Inomata”). The Office Action also rejected Claims 9, 17, and 37 under 35 U.S.C. § 103(a) as being unpatentable over Audeh in view of Inomata and P.S. Wallace, *Heavy Oil Upgrading by the Separation and Gasification of Asphaltenes* (hereinafter “Wallace”).

The Office Action states “Audeh discloses that his process can be used to produce a [sic] FCC feed, and that the upgrading means may be catalytic cracking, hydrotreating, or hydrocracking.” The Examiner further comments that *Inomata* describes a process

“encompassing both hydrocracking and hydrodemetallization [*sic*]... Elaborating on the process of demetallization, *Inomata* [*sic*] explains that metallic compounds in the hydrocarbon are hydrolyzed at high temperatures and pressures in the presence of hydrogen.” The Office Action concludes “the person having ordinary skill in the art... would have been motivated to incorporate *Inomata*’s hydrorefining process as the upgrading means of *Audeh*’s process in order to (1) deposit a portion of the metals from the DAO fraction onto an FCC catalyst, (2) recover a hydrocarbon effluent having a reduced metal content from an FCC unit, and (3) remove metallized catalyst from the FCC unit.” The Office Action further concludes that a “reasonable expectation of success in incorporating *Inomata*’s hydrorefining process as the upgrading means in *Audeh*’s process” exists “because (1) both *Audeh* and *Inomata* are directed to the solvent deasphalting of heavy oil, and (2) *Audeh* specifically contemplates the use of hydrocracking and hydrotreating as the ‘upgrading means’ in a process for upgrading crude oils.”

Applicant has canceled Claims 1-4 and 27-37 without prejudice obviating the rejections with respect to these claims. Applicant has also canceled Claim 12 without prejudice and amended base Claim 5 to include the subject matter of original claim 12. None of the references of record, alone or in combination, teach, show, or suggest supplying a feed comprising the DAO fraction to a reaction zone of a fluid catalytic cracking (FCC) unit with FCC catalyst to deposit a portion of the metals from the DAO fraction onto the FCC catalyst, wherein lower boiling hydrocarbon fractions are introduced to the FCC unit with the DAO fraction, as required in Claim 5, as amended, and those claims dependent therefrom.

Audeh discloses sending DAO to a “distillation column 40 for recovery of conventional product fractions” followed by removing “the heaviest fraction from the column 40” and “mix[ing] (the heaviest fraction) with a resin fraction 24” which can then be “charged to an upgrading means.” (*see Audeh* col. 5, ll. 49-58.) *Audeh* uses the distillation column 40 to remove the lower boiling hydrocarbons present in the DAO, feeding only the “heaviest fraction” with or without the even heavier resin fraction 24 to the “upgrading means 60.” Since the lower boiling point hydrocarbon fractions are removed from the DAO in the distillation column 40, the heavier DAO fraction supplied to the FCC does not contain the low boiling point hydrocarbon fractions, as required in Claim 5 and those claims dependent therefrom.

Inomata does not cure the deficiencies of *Audeh*. Conversely, *Inomata* discloses a hydrotreating process, not an FCC. Thus, a combination of *Audeh* and *Inomata* does not teach, show or suggest “removing metallized FCC catalyst from the FCC unit, wherein lower boiling hydrocarbon fractions are introduced to the FCC unit with the DAO fraction,” as required in Claim 5 and those dependent therefrom. Withdrawal of the rejection and allowance of the claims is respectfully requested.

Further, in response to the Office Action’s comment that “*Audeh* explicitly recognizes catalytic cracking (FCC) [*sic*] to be an equivalent of hydrocracking and hydrotreating” (*see* Final Office Action ¶36), it should be noted that cracking performed in a hydrogen-lean environment, *e.g.* fluid catalytic cracking, provides a different product matrix than cracking in a hydrogen-rich environment, *e.g.* hydrocracking and hydrotreating, and therefore, are not equivalent. Cracking in a hydrogen-lean environment can provide a product matrix rich in unsaturated hydrocarbons, such as a product matrix containing one or more olefins. In contrast, cracking in a hydrogen-rich environment can provide a product matrix rich in saturated hydrocarbons, such as a product matrix containing one or more paraffins. While hydrocracking, hydrotreating and catalytic cracking are all well-known techniques for reforming hydrocarbons, such techniques are not equivalents nor interchangeable because no two products are the same. Accordingly, there is no expectation of success from the Office Action’s proposed combination of *Audeh*’s FCC process and *Inomata*’s hydrotreating process because the processes are not equivalent and do not produce equivalent products. For at least this reason, withdrawal of the rejection and allowance of the claims is respectfully requested.

Having addressed all issues set out in the Final Office Action, Applicant respectfully submits that the pending claims are now in condition for allowance. Applicant invites the Examiner to telephone the undersigned attorney if there are any issues outstanding which have not been addressed to the Examiner's satisfaction.

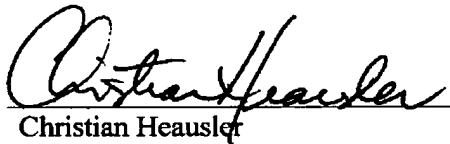
Since this Response is being filed within two months of the mailing date of the Final Office Action, Applicant respectfully requests that the Examiner send the Applicant an Advisory Action regarding this response.

If any fees are due with the noted amendments, the Director is hereby authorized to charge any fees associated with this filing to Deposit Account Number 11-0400 in the name of Kellogg Brown & Root LLC.

Respectfully submitted,

Date

12/17/07



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